Source Descriptions and Containment[1]

Source No.	Source Description	Location (Drawing E-1)	Volume Stored	Operation Description	Type of Failure	Direction & Rate of Flow	Containment or Diversionary Structures
Oil or NAPL Containing Equipment							
1	Sediment tanks with oil skimmers	S-104-01 S-104-02	~200 gallons NAPL, 18,000 gallons total	Tanks separate sediment and LNAPL from groundwater. LNAPL quantity is estimated at <1% of the tanks' capacity.	Leakage; overfill	Flow towards NW and SW corners of site	Spill containment pad under tanks. Soil berm surrounding primary process equipment
2	Primary NAPL recovery tank	T-104	2,000 gallons	All NAPL and emulsions captured by a floating oil skimmer is gravity fed and stored in this tank.	Leakage; overfill/pressure relief	Flow towards SW corner of site	Double-walled tank; soil berm surrounding primary process equipment; sump with level switch
3	Skimmer Oil Pumps	P-110-01A P-110-01B	15 gpm	Pump from the primary NAPL recovery tank through the bag filter and heat exchanger.	Pump, valve or pipe leakage or rupture.	Flow towards SW corner of site	Soil berm surrounding primary process equipment
4	NAPL Bag Filters	FX-103A FX-103B	15 gpm	NAPL flows through the bag filters prior to the heat exchanger to remove any coarse particles.	Leakage or rupture due to high pressure or drain valve open	Flow towards SW corner of site	Soil berm surrounding primary process equipment
5	NAPL Heat Exchanger	E-103	15 gpm	Cools LNAPL prior to storage in LNAPL Tank T-101.	Leakage or rupture due to high pressure.	Flow towards SW corner of site	Soil berm surrounding primary process equipment
6	LNAPL Tank	T-101	2,000 gallons	Collects NAPL skimmed from the gravity separators.	Leakage; overfill/pressure relief	Flow towards SW corner of site	Double-Walled Tank; soil berm surrounding primary process equipment
7	LNAPL Tank Transfer Pumps	P-107A P-107B	15 gpm	Pump LNAPL from LNAPL Tank (T-101) to NAPL Conditioning System (S-106).	Pump, valve, or pipe leakage or rupture.	Flow towards SW corner of site	Soil berm surrounding primary process equipment

Source Descriptions and Containment[1]

Source No.	Source Description	Location (Drawing E-1)	Volume Stored	Operation Description	Type of Failure	Direction & Rate of Flow	Containment or Diversionary Structures
8	NAPL Conditioning System	S-106	15 gpm	Purifies the LNAPL for reuse as a secondary fuel in the steam boilers and thermal accelerators.	Valve or pipe leakage or rupture. Drain valve open.	Flow towards SW corner of site	Soil berm surrounding primary process equipment
9	Gravity Separators	S-105-01 S-105-02	600 gallons NAPL,	Separate LNAPL from the liquid stream.	Leakage; overfill	Flow towards SW corner of site	Soil berm surrounding primary process equipment
10	Conditioned LNAPL Tanks	T-103-01 T-103-02 T-103-03	20,000 gallons each	LNAPL is run through a hydrophobic polishing separation cartridge allowing only the JP-4 fuel to be stored in the Conditioned LNAPL tanks.	Leakage; overfill/pressure relief	Flow towards SW corner of site	Double-walled tanks; soil berm surrounding primary process equipment
11	NAPL Piping	Throughout Facility	Varies	Conveyance between primary process equipment including LNAPL Tanks and steam boilers.	Leakage; rupture	Flow towards SW corner of site	Soil berm surrounding primary process equipment and asphalt berm at SW corner of site
12	Drums - Spent Filter Bags	West side of the Site	55 gallons	55-gallon drum(s) to store spent filters from all bag filters, including the NAPL Bag Filters. Drums are stored on spill pallets.	Leakage; accidentally overturned	Flow towards SW corner of site	Spill pallets and Soil berm surrounding primary process equipment
13	Standby Emergency Generator	GEN-1	1,000 gallons	Diesel generator used to provide partial system operation in the event of a power outage.	Leakage, overfill	Flow towards NW corner of the site	Small leaks/spills would be contained by the trailer. A secondary containment constructed with plastic tanks installed beneath the trailer.
14	Portable Fuel Cell	NA	100 gallons	Fuel site equipment	Leakage, filled offsite if needed	Flow towards NW corner of the site based on present storage location	Soil berm surrounding primary process equipment
Other (Non-Oil and LNAPL) Containing Equipment with Containment							
15	Discharge Tank	T-102	20,000 gallons (groundwater) NAPL is possible in this tank but not under typical conditions	Stores water after oil/water separation and feeds eductor motive water and air strippers	Leakage; overfill/pressure relief	Flow towards SW corner of site	Spill containment pad under tank. Soil berm surrounding primary process equipment

Source Descriptions and Containment[1]

Source No.	Source Description	Location (Drawing E-1)	Volume Stored	Operation Description	Type of Failure	Direction & Rate of Flow	Containment or Diversionary Structures
16	Chemical Additives	TT520, REDUX 620 (North of Sediment Tanks)	3 totes (up to ~825 gallons total)	Chemicals metered into process water and/or cooling water loop for biomass and deposit control	Leakage; rupture	Flow towards SW corner of site.	Spill containment pad under totes.
17	Chemical Additives	Verox 8 /spares (North of Sediment Tanks)	2 totes (up to ~550 gallons total)	Chemicals metered into process water and/or cooling water loop for biomass and deposit control	Leakage; rupture	Flow towards SW corner of site.	Spill containment pad under totes.
18	Chemical Additives	TT100, TT250, TT400 (between boilers)	6 totes (up to ~1,650 gallons total)	Chemicals metered into boiler water feed.	Leakage; rupture	Flow towards SW corner of site.	Spill containment pad under totes.
19	Chemical Additives	REDUX 340 (Near T102)	4 totes (up to ~1,100 gallons total)	Chemicals metered into process water for deposit control	Leakage; rupture	Flow towards SW corner of site.	Spill containment pad under totes.
20	General Process Area with extracted groundwater and treated potable water (boiler and cooling towers)	NA	NA	All liquid processing equipment	Leakage, overfill, pressure relief	Flow towards SW corner of site. Potential small component of flow in SE corner to SE.	Soil and asphalt berm surrounding primary process equipment. Four collection sumps with level switches interlocked to extraction system.

NOTES:
gpm – gallons per minute
NA – not applicable
NAPL – non-aqueous phase liquid
NW - northwest
SE - southeast
SW – southwest
[1]Updated from Spill Prevention Control and Countermeasures Plan Table 4-1 to include additional non-oil sources.